



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,706	09/06/2006	Naoto IKEGAWA	80079(302721)	3043
21874	7590	10/05/2009		
EDWARDS ANGELL PALMER & DODGE LLP				
P.O. BOX 55874				
BOSTON, MA 02205				
EXAMINER				
JACKSON, MONIQUE R				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
10/05/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,706

Applicant(s)

IKEGAWA, NAOTO

Examiner

Monique R. Jackson

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF 298)
Paper No(s)/Mail Date 9/6/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites the limitation “plate-like” however unlike Claim 5 which recites the limitation “fiber-like” along with a diameter and aspect ratios to define the term, the term “plate-like” renders the claims indefinite for it is unclear how flat a filler must be in order to be considered “plate-like”.
3. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Although alternative expressions are permissive in the claims, they should be drafted in proper alternative format, i.e. “**selected from A, B or C**”; or in proper Markush claim format, i.e. “selected from the **group consisting of A, B and C**”. A claim that recites “selected from the group essentially consisting of A, B or C” as in the instant claims is improper.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 and 5-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuta et al (USPN 6,124,004.) Furuta et al teach a laminate of liquid crystal polyester (LCP) resin with a metallic foil, such as a copper foil, wherein the LCP resin comprises of a LCP (A) and a rubber (B) having a functional group reactive with the LCP, such as an epoxy group, preferably a glycidyl group (Abstract; Col. 3, lines 1-10; Col. 8, lines 1-8; Col. 12, lines 3-9.) Furuta et al teach that the functional rubber is preferably a (meth)acrylate-ethylene-unsaturated carboxylic acid glycidyl ester and/or unsaturated glycidyl ether copolymer rubber having an ethylene content of preferably more than 3wt% but less than 50wt% and the glycidyl ether or ester content is preferably more than 0.1 but less than 30% by weight (Col. 9, lines 12-21.) Furuta et al teach that the component A is provided in an amount of 56-99.9wt% and the component B is an amount of 0.1-44wt% (Col. 9, lines 58-64.) Furuta et al teach that an inorganic filler may be included in the LCP resin composition with suitable fillers including inorganic fibers and whiskers as well as silica, clays and other fillers typically provided in "plate-like" form (Col. 10, lines 23-29.) Furuta et al teach that the LCP may be formed from known production methods and comprises repeat units as recited in Col. 3-6, which read upon the claimed invention as recited in Claims 2-3 and 14-15 and also teach that the resin is subjected to a heat treatment (Col. 3-6; Examples.) Furuta et al teach that the surface of the film formed from the LCP composition can be subjected to a surface pretreatment step such as plasma treatment (Col. 12, lines 10-29.)
6. With respect to the instantly claimed ethylene content of 50-99.9wt%, though Furuta et al teach a "preferred" range of less than 50wt%, it would have been obvious to one having ordinary skill in the art at the time of the invention that values just above the preferred range taught by

Furuta et al would be suitable for the invention and based upon the teachings of Furuta et al with respect to the effect of the other copolymer components on the composition, one skilled in the art would have been motivated to determine the optimum content for the copolymer based upon the desired end use of the film. In terms of the shape and content of inorganic filler, it is well established in the art that the shape (aspect ratio) and content of filler is a result-effective variable affecting the mechanical properties of the film and one skilled in the art would have been motivated to utilize typical amounts or routine experimentation to determine the optimum filler and filler amount to provide the respective properties for a particular end use given predictable results. In terms of the claimed circuit pattern for the metal layer, though Furuta et al teach that the laminate is suitable in the electronics industry and particularly as a printed wiring board, Furuta et al do not specifically teach the metal being laser etched to form a circuit pattern, however, such processing step or such metal patterning would have been obvious given the teachings of Furuta et al with respect to "printed" wiring boards. With respect to the process step for forming the metal layer, though Furuta et al teach lamination of a metal foil to the LCP resin, deposition methods such as PVD as claimed are an obvious, functionally equivalent means of providing a metal layer on a polymer resin and would have been obvious to one skilled in the art at the time of the invention, wherein the selection of an operable temperature for heat treatment prior to lamination is well within the ordinary skill level of an artisan in the art.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furuta et al (USPN 6,124,004) in view of Furuta et al (USPN 5,891,532.) The teachings of Furuta et al are discussed above and as noted, though Furuta et al teach that the ethylene content is **preferably** more than 3wt% but less than 50wt%, one having ordinary skill in the art at the time of the invention would

have been motivated to utilize routine experimentation to determine the optimum ethylene content to utilize based upon the desired end properties of the resin wherein Furuta et al '532 teach a similar LCP resin composition but with an ethylene content of 50-99.9% by weight to provide a particular stiffness modulus (Col. 8-9.) Hence, given the predictable results based upon the teachings of both Furuta et al references, the instantly claimed range of 80 to 95wt% of ethylene would have been obvious at the time of the invention based upon the desired mechanical properties for a particular end use.

Double Patenting

8. Claims 1-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5, 7, 8, and 10-19 of copending Application No. 10/591865. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to one having ordinary skill in the art at the time of the invention to combine dependent claim limitations and select typical inorganic filler shapes and amounts based upon the desired end use of the molded article. With respect to Claim 8, though the copending application teaches a metal layer coated on the molded article in a circuit pattern and specifically claim a circuit board, the copending application does not specifically claim the type of metal applied. However, copper is an obvious conventional metal utilized in the art, as well as the other metals claimed, and would have been obvious to one having ordinary skill in the art at the time of the invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 10:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Monique R Jackson/
Primary Examiner, Art Unit 1794
September 30, 2009